

Three Case Studies

The following three sections examine excellent examples of air power employment in World War II: the Royal Air Force's (RAF) legendary victory in the Battle of Britain, Gen George C. Kenney's innovative use of air power in the Southwest Pacific Area (SWPA), and the Combined Bomber Offensive (CBO) over Germany.

The Battle of Britain

In the summer of 1940, the most powerful army and air force the world had ever known were on a winning streak; after little less than a year of Blitzkrieg through Europe there remained just two historically, but not currently, powerful nations unconquered: Britain in the northwest and the Soviet Union in the east. To deal first with Britain and then turn to the USSR ostensibly was the preference of Adolf Hitler. But the Blitzkrieg strategy faced an entirely new dilemma: at least 22 miles of water (the English Channel) separated the opposing armies and for the first time, the Luftwaffe had to stand alone and fight against a technologically equal yet numerically inferior enemy, the Royal Air Force.

By 1938 the Luftwaffe had modified the strategic bombing theories of Giulio Douhet and others to suit their circumstances. "Strategic" did not presuppose long range; when the threat is from immediate neighbors, large numbers of medium and light bombers could achieve Douhetian results. Furthermore, with a highly mobile and powerful army, the faster, more mobile, lighter aircraft could be made flexible and become a highly effective support for the army. Indeed, experience in the Spanish Civil War of 1936–1939 had shown that, having achieved air superiority by close liaison and complementary action with the army, defeat of the enemy in the field rendered bombing of his heartland either nugatory or even, by inspiring defiance, counterproductive. But Hermann Goering was ever ready to proclaim that his beloved Luftwaffe could and would fight alone and be victorious.

By 1939 the Luftwaffe had a well-defined, primarily offensive, doctrine of air power employment: achieve air superiority by destruction of the enemy's air force, if possible by destroying enemy aircraft and support facilities on the ground with waves of medium, light, and dive bombers. The tenet of persistence with the necessity for attack and reattack was espoused as was the concept of dislocation and exploitation. This included the ability to effectively hit an enemy force and then hit again before it has the ability to regain its composure from the initial attack. Surprise was considered an invaluable asset in achieving superiority, but, if necessary, high-quality fighters would meet and destroy the enemy air force in the air. Air superiority served the purpose of allowing the army freedom to operate and the air force to support the army. Tactical support of the army did not rule out the air force's ability and intention to strike deep into the enemy's heartland at military or civilian targets as thought necessary. To this end, Luftwaffe force structure consisted of those aircraft needed to fight the envisioned short duration European war with little or no need for those weapons capable of credible force projection outside of the continental European land mass.

Not surprisingly, the organizational structure of the Luftwaffe closely mirrored that of the army, whereby in a geographic region the army could call upon the air force to fulfill the three-pronged doctrine to execute the Blitzkrieg strategy. A region was therefore assigned a *Luftflotte*, each with its own independent command and force structure to achieve air superiority, support the army, and strategic bombardment.

The force structure of each Luftflotte therefore consisted of aircraft with the ability to support the objectives and strategies of their combined arms doctrine. Twin-engined medium bombers, primarily the Heinkel He-111, Dornier Do-17, and Junkers Ju-88, all three of which were originally designed as civilian transport aircraft, as well as the Junkers Ju-87 Stuka dive bomber were the bombers with which the Luftwaffe would enter the Second World War. The primary fighter was the Messerschmitt Me-109, whose performance was matched only by the British Spitfire. The venerable Me-109 was

supported and augmented by the disappointing Messerschmitt Me-110 twin-engine heavy fighter.

Using the Blitzkrieg strategy developed and tested in the Spanish Civil War by the German Condor Legion, the German military machine rolled over the forces of Czechoslovakia, Poland, Norway, Holland, Belgium, and finally France in June 1940. During the Battle of France, the Luftwaffe encountered for the first time significant opposition from British Hurricane and the Spitfire fighters, but unfortunately, RAF aircraft were too few in number and ill-organized. The result was the same. This was the confirmation of invincibility, if Goering needed it, to persuade Hitler that the Luftwaffe was ready to stand alone against the Royal Air Force.

The RAF entered the Battle of Britain woefully short of combat experience of the type to be encountered in the summer of 1940. Earlier in that year several squadrons had been sent to France to assist the Dutch and French but, few in number and with no army support doctrine, they had fared badly, losing more than 400 aircraft, even if they had shot down almost as many Germans. At the beginning of the Battle of Britain, the Germans had approximately 875 He-111, Ju-88, and Do-17 medium bombers and approximately 320 Ju-87 Stuka dive bombers operationally ready at their disposal to attack Britain. The prime British antagonists were roughly 400 Hurricane and 200 Spitfire fighters against 700 Me-109s and 230 Me-110s protecting the German bombers.

Historians still dispute what constitutes the beginning and the end of the battle. For the purpose of this analysis, the beginning was the commencement of the defense of British territory from air attack and ending was when, with hindsight, these attacks no longer threatened the existence of the RAF. The battle effectively covers the months of July, August, and September 1940. During that time, the battle can be divided into four phases characterized by the Luftwaffe's targets:

- a. channel shipping and harbors (draw out/destroy RAF);
- b. radars and forward fighter airfields (draw out/destroy RAF);
- c. inland airfields and aircraft production (draw out/destroy RAF); and

- d. London by day (draw out/destroy RAF). The Luftwaffe attacked London by night throughout the battle.

The Luftwaffe's objectives were twofold: prepare the way for the amphibious invasion, Operation Sea Lion, and draw the RAF into the battle and defeat it, thus achieving air superiority. With the deadline for Sea Lion approaching, attacks on radars and airfields were needed to accelerate the attrition rate of the RAF and achieve air superiority for the Luftwaffe. Radar antennas were vulnerable to air attack and the Ju-87 Stuka was the ideal delivery vehicle. Despite the Luftwaffe's initial successes, it became alarmingly apparent that the Stuka was a sitting duck on recovery from its delivery dive. These aircraft were shot down in such numbers that this hero of the Blitzkrieg was soon withdrawn from the battle, never to return.

A weakness also appeared in Luftwaffe intelligence, which failed to appreciate that it was almost as easy to make mock radar heads or rebuild damaged ones as it was to knock them out. The radar network therefore suffered setbacks, but temporary ones.

Attacks on airfields had more sinister implications for RAF Fighter Command. The runways quite often sustained sufficient damage to hinder operations, but maintenance facilities, fuel stores, and other support began to suffer, reducing the RAF's overall combat effectiveness. Nevertheless, a high fighter production rate and the radar system allowed the RAF to start drawing ahead in the war of attrition. That RAF pilots who survived a shootdown often soon returned to a cockpit, whereas Luftwaffe pilots rarely did, was also becoming increasingly significant.

It became apparent to the Luftwaffe that the RAF was using inland airfields as safe havens to effect maintenance, repair, and crew rest. The continued advantage of mass at most points of contact enjoyed by the RAF, facilitated by radar, masked to the Luftwaffe the cumulative effect of their damage to forward airfields. The attacks therefore became more widespread to include airfields farther inland and aircraft factories.

Intelligence again let the Luftwaffe down; many attacks were being directed at airfields and factories of no direct consequence to the Spitfire and Hurricane effort. The Luftwaffe was also unaware of collateral damage to several sector control rooms located at inland airfields. Incapacitation of these control rooms would have crippled Britain's precious radar network. In violation of their own prewar doctrine stressing persistence, the absence of follow-up attacks allowed time for the British to repair and reinstate critical control systems and functions.

Attention to these targets, however, took pressure off the forward airfields only slightly and, despite a continued loss rate in favor of the RAF, Fighter Command was becoming saturated with problems. Shortage of pilots was becoming critical and, despite rotations to the less active No.12 and 13 Groups further north, pilots in No. 11 Group in the southeast of the country were becoming exhausted. This combination of damage to airfields and control facilities and the pilot shortage reached a point where many of Air Marshal Sir Hugh Dowding's staff spoke in terms of withdrawing the remaining 11 Group fighters to the north for survival. Then came what Dowding described later as the "miracle" of the Battle of Britain.

On 7 September 1940, the entire Luftwaffe daylight bombing effort was directed at London. Despite losing 40 aircraft to the RAF's 23, serious, widespread damage was caused in central London. The real significance, however, was that from that moment repairs to airfields and the command and control system could continue unhindered.

Now operating at the limit of their fighter escorts' cover, the German bombers were at their most vulnerable to RAF fighters. The escorts had only 10 minutes endurance over London before they had to turn for home, concentrating on their fuel gauges and with no reserves to avoid attacking Spitfires and Hurricanes. The RAF's pilot losses were reduced and aircraft production rate kept pace with their losses.

By the end of September, it was clear that the Luftwaffe would not gain air superiority over Britain and Hitler postponed the invasion of Britain indefinitely. Attacks continued on London over the next

several months, increasingly by night, but the Battle of Britain, Germany's first defeat since World War I, had been decisively won by the RAF.

Hitler's decision, and undoubtedly it was ultimately his, to switch the attack from the RAF and its support to London was the turning point in the battle. A minor RAF bombing raid on Berlin so incensed both Goering and Hitler that they ignored all counterproposals and sought revenge on London. The Luftwaffe's intelligence network was poor; in wishing to placate Goering and Hitler's impatience, they prematurely pronounced the defeat of the RAF. They were close to the truth. Goering's stated aim was the total destruction of Fighter Command. To prevent the command from withdrawing to the north of London as seemed imminent in early September, he needed to present it with a challenge that would cause it to stand and fight to the last aircraft; London was that challenge.

Whatever the reasons, all would have been to no avail for the British had they not been capable of taking advantage of their stroke of good fortune. That Fighter Command took this advantage was no accident; it was due to the method the command had developed for employing air power.

Fighter Command's organization was such that commanders at every level were given sufficient information and authority to make correct decisions and implement them. The structure was simple, secure (if not from air attack), and based on unity of command. At every level from group through sector to wing and squadron, each commander knew which part of the Luftwaffe's attack was his responsibility. The structure of the Luftwaffe, on the other hand, was such that each Luftflotte had individual commanders whose respective elements had little or no coordination between them. Commanders within a Luftflotte were not given sufficient information or authority to optimize their contribution to the overall effort of the Luftwaffe.

As an attack approached, information from radar and the Royal Observer Corps (ROC) allowed Fighter Command to develop, at the appropriate level, a broad plan of action. Since higher commanders

delegated authority downwards (decentralized execution), subordinate commanders were given the flexibility to use their own initiative in attacking targets, communicating by very high frequency (VHF) radio. The Luftwaffe command was centralized in Goering who personally dictated fighter and bomber strategy and tactics. The method of execution of the task was therefore predetermined at a high level and was rarely decentralized.

Although the Luftwaffe was not aware of it throughout the battle, the whole ROC and radar network and communications within Fighter Command relied on standard, in some cases World War I vintage, civilian telephone lines. Nothing could have been simpler, but the system remained secure only by courtesy of German ignorance. Furthermore, excellent ground-to-air and air-to-air communications were available through the RAF's VHF radios, facilitating decentralization of execution down a simple command structure. Conversely, the Luftwaffe had unreliable high frequency (HF) radio links and, once airborne, could only communicate fighter-to-fighter or bomber-to-bomber within a Luftflotte. Therefore, the preflight brief was, in the main, the battle plan used by the Luftwaffe over Britain, regardless of any friction and fog the RAF caused.

Acquiring accurate and timely intelligence was Fighter Command's strength and the Luftwaffe's Achilles' heel. The RAF used radar for the first time in an air defense network. For the first time, a fighter pilot could obtain accurate and *current* information on his adversary from beyond the range of his own eyes. This information was not only a great advantage to the individual in combat, but it allowed commanders to use both mass and economy in deploying forces. These benefits were not available to the pilots of the Luftwaffe; consequently, the fog of war was almost always thicker for them and their superiority in numbers was frequently negated.

"The Few" achieved a famous victory against all odds in the first battle in history to be fought entirely in the air. But it was a defensive battle early on in a long war; it would be more than a year before Britain could launch a concerted air offensive against Germany. Only by offensive action can a war ultimately be won.

The Southwest Pacific Campaign

Mention World War II's Pacific campaign and usually what comes to mind is island hopping, naval battles, and the dawn of atomic weapons. B-29s dropped the atomic bombs that sealed Japan's final surrender. However, the bombs were only the final act in the phase that began in mid-1942 in the Southwest Pacific.

Japan, in its massive expansion, secured enough territory and resources to fight a long war. Air War Plans Division (AWPD)-42 stated that the defeat of Germany was the United States' first priority. Air operations against Japan would be defensive until resources and manpower could be sufficiently supplied to the Pacific theater. The ultimate objective in the Pacific would be to regain air bases from which a final strategic bombing offensive could be launched against Japan. Lt Gen George C. Kenney, Gen Douglas MacArthur's new air commander in Australia, pondered key questions including how and where to conduct air operations to accomplish this goal.

When General Kenney assumed command of the Fifth Air Force in New Guinea, he reported directly to General MacArthur. MacArthur, against advice of his staff, delegated full authority over all air operations to Kenney. Kenney was handed a force of obsolete aircraft divided between Australia and Port Moresby, New Guinea. To compound his problems, his supply depot was located 2,000 miles away in Melbourne, Australia. Before any operations began he first had to move his forces and supplies to northern Australia.

Over Europe high-altitude daylight precision bombing was working with good success. However, the territory Japan controlled was expansive and rural, while Europe was highly industrialized and concentrated in a relatively small area. In 1942, AWPD planners failed to realize that Japan's weak link was its logistical chain. The Japanese used a huge merchant fleet to supply their remote outposts. Viewing this, Kenney decided to concentrate on the Japanese fleet.

As a previous Air Corps Tactical School (ACTS) instructor, he decided to follow the European theater of operations (ETO) example of high-altitude bombing, but failed to gain success. Japanese ships

easily maneuvered away from bombs dropped from 25,000 feet, and Pacific wind problems caused unacceptable errors during delivery. To defeat the Japanese, Kenney would have to adapt and develop new techniques for his air campaign strategy.

Kenney's new pattern of employment coincided with support of MacArthur's army. First, he would send fighters and medium bombers to gain air superiority over the Japanese airfield to be attacked. P-47s and P-38s conducted offensive counterair (OCA) in air-to-air combat with Japanese fighters while B-25s or A-20s flew low-level across the field bombing and strafing. The noses of these aircraft were fitted with between eight and fourteen .50-caliber machine guns. Flying at 50 feet, they would first strafe any Japanese aircraft left on the airfields. Then, using parachute fragmentation (para-frag) bombs, aircrews destroyed the runway. A parachute deployed out the back of the bomb, retarding its fall, thus giving the bombers time to escape the bomb blast. Simultaneously, B-17s or B-24s, flying at high altitude attacked other Japanese airfields. Thus, the Japanese were forced to divide their defense, and distant airfields were isolated.

Any merchant vessels sent to resupply the besieged Japanese garrison found themselves under attack from P-47/P-38s and B-25/A-20s. Kenney's aircrews developed a unique tactic for destroying these lightly armed ships—low-level skip bombing. B-25s and A-20s would fly 50 to 75 feet above the water, releasing their weapons 100 yards from the ship. The bombs would skip across the water, impact the side of the ship, and sink six feet before detonating. Skip bombing proved very effective in the antimaritime role.

Finally, Kenney used fighters and bombers to provide close air support (CAS) for MacArthur's advance through the jungle. Japanese positions that were well dug in were simply bypassed and left to be mopped up later when their supplies ran low. As MacArthur pushed on, combat engineers repaired old Japanese airfields and built new airfields so that Fifth Air Force could keep up with the army's advances. Thus, Kenney could forward deploy his fighters and they could escort bombers during the entire mission.

Kenney included deception in his bag of tricks. His engineers built fake forward-deployed airfields. Unflyable aircraft and other equipment were placed on these airfields. The Japanese bought the ploy, thinking they were operational, and bombed them. Once again, the Japanese were forced to divide their forces and never were able to attack the real airfields with any concentrated effect.

Kenney also experimented using B-17s and B-24s for aerial resupply. The “heavies” were used to drop supplies to advance army units. In addition, several B-17s and B-24s were converted to cargo aircraft flying supplies into advance airfields. Kenney’s success was a direct result of his flexibility. He changed his strategy and tactics to meet the needs of US Army ground and air forces.

Unfortunately, Kenney’s tactics of low-level attack, skip bombing, strafing, and deception were largely ignored after the war. The B-29 atomic bomb attacks and Japanese surrender seemed to validate Douhet’s single-minded emphasis on strategic air power. General Kenney’s innovative and successful Southwest Pacific campaign slipped from everyone’s mind as the United States embraced the new atomic way of war.

The Combined Bomber Offensive

In January 1943, Allied leaders met for a conference in Casablanca, Morocco to discuss and determine the direction of the combined bomber offensive against Germany. This directive’s purpose was to “govern the operations of the British and United States Bomber commands in the United Kingdom.” Its “primary object will be the progressive destruction and dislocation of the German military, industrial and economic system, and the undermining of the morale of the German people to a point where their capacity for armed resistance is fatally weakened.”¹ As far as the air war in Europe in World War II is concerned, this conference was the most significant. From it came two major directives, one outlining Allied strategic bombing policy and the other detailing plans for the future tactical air

support of ground operations. The strategic policy directive resulted in the plan for the Combined Bomber Offensive.

The Plan

The plan for the CBO differed from AWPDP-1 and AWPDP-42* in that the previous plans were based on future requirements, and the CBO plan was based on capabilities already in the field or in production. The target list of AWPDP-42 was reduced, reorganized and specified six major industrial areas with a total of 76 targets. The six major areas were

1. the German aircraft industry,
2. submarine construction yards and bases,
3. ball bearing industry,
4. oil production and storage,
5. synthetic rubber and tire plants, and
6. military transport vehicles.

The Casablanca directive of 1943 which governed the prosecution of the Combined Bomber Offensive differed from AWPDP-42 in its listed target areas. Casablanca directed targets in order of priority that could change “according to developments in the strategical situation.” Casablanca’s directive stated that “within that general concept, your primary objectives, subject to the exigencies of weather and of tactical feasibility, will for the present be in the following order of priority:

- a) German sub construction yards
- b) The German aircraft industry
- c) Transportation
- d) Oil plants
- e) Other targets in the enemy war industry”²

Casablanca differed greatly from AWPDP-42 in that Casablanca was a combined United States Army Air Force (USAAF) and RAF

*Devised in the Air War Plans Division of the Air Staff, AWPDP-1 and AWPDP-42 were simultaneous plans for strategic bombing campaigns against Nazi Germany (to include targets and targeting priorities) and estimates of the force structure required to conduct such campaigns. Unlike the joint AAF-RAF CBO, AWPDP-1 and AWPDP-42 applied only to operations conducted by the US Army Air Forces.

agreement for the conduct of the bombing of Germany. AWPD-42 applied only to those operations likely to be conducted by the USAAF.

In addition, the “Eaker Plan” as an integral part of the CBO, also identified an intermediate objective of destroying the Luftwaffe. Eaker recognized that the achievement of air superiority was crucial to the daylight bomber offensive. The Eaker Plan stated, “if the growth of the German fighter strength is not arrested quickly, it may become literally impossible to carry out the destruction planned.”³ Although classifying the air offensive against the Luftwaffe as an intermediate objective sounds as though it was placed on a back burner, the reality of the situation was quite different. Both the RAF and USAAF leaders recognized that to successfully attack the targets listed in the CBO plan and achieve air superiority for an invasion of Europe, their air power must effectively eliminate the Luftwaffe. They envisioned accomplishing this objective in conjunction with the attacks on the specified targets. A key aspect in the on-going discussion between the RAF and AAF as to whether to use daylight bombing or night area bombing procedures was also settled in this plan. Even though the targets specified required precision bombing, it was decided that AAF and RAF procedures would complement each other. The combined effort of daylight bombing of industries and night bombing against industrial areas and German morale could have a serious effect on the Germans’ ability to continue the war.

Overview of the Combined Bomber Offensive

For the AAF, the CBO began with the attack on the U-boat construction yards (the first priority target of Casablanca) at Wilhelmshaven, Germany, on 11 June 1943. Accuracy was hampered by Me-109s and FW-190s and losses totaled eight B-17s out of 168. The Germans increased their attacks against the bombers as evidenced by the 13 June raid on the U-boat pens at Kiel, Germany. Out of 60 B-17s launched, 26 were shot down (a loss rate of 43 percent). This mission resulted in the greatest losses thus far, but the worst was yet to come.

October 1943 would be remembered as “Black October.” The second raid on Schweinfurt, Germany, the location of 42 percent of the ball bearing industry, signaled the beginning of the end for the idea of unescorted bombers. During the previous attack on Schweinfurt-Regensburg on 17 August 1943, 60 American heavy bombers were shot down out of 376 launched (roughly 16 percent). This time the losses were even worse. On the 14th of October, VIII Bomber Command launched 291 B-17s to attack Schweinfurt for a second time. The results can be summed up in a crew member’s remark calling the 14th “Black Thursday.” Sixty bombers, each with a crew of 10, were shot down, and 17 more suffered irreparable damage.

Combine these figures with the results from other bombing missions of the week 8-14 October and it is easy to understand why the commander of the VIII Bomber Command temporarily halted US participation in the CBO. Out of 1,342 sorties launched that week, 152 bombers were lost—11.3 percent. Add in the figure of 42 percent having sustained major and minor damage, and you can see that more than half the sorties resulted in friendly losses or damage. Not counting crew members wounded or killed in aircraft that made it back, 1,520 crew members went down with their planes or were lost to enemy prisoner of war (POW) camps. It would be four months before the VIII Bomber Command would make another run into Germany. “We can afford to come up only when we have our fighters with us,” said Brig Gen Fred L. Anderson, commander, VIII Bomber Command.

With the month of October lingering in everyone’s mind, the Combined Bomber Offensive was off to a rather inglorious beginning. However, good use was made of the four-month hiatus. Crews were rested and new crew members trained. The most important development, however, was the expansion of fighter escort range. P-38s and P-47s were fitted with extended range fuel tanks permitting them to escort the bombers farther into Germany. In fact, by March 1944, the P-47s could provide coverage all the way to central Germany. With the introduction of the P-51, the range of fighter escort

was extended to cover all of Germany. Finally, escort tactics took on a distinctly offensive character. Previously ordered to “stick with the bombers,” beginning early in 1944, fighter pilots were encouraged to leave the bomber formations and search out the enemy.

The performance of the P-47 during “Big Week” 20–25 February 1944 contributed greatly to saving the bomber offensive. During this period (20–26 February 1944), 3,800 bomber sorties dropped just under 10,000 tons of bombs on German aircraft factories. More than 3,600 fighter sorties were flown in support of the bombers. Losses for the Americans totaled over 250 bombers but only 28 fighters. For the Luftwaffe, this air battle proved to be disastrous, not because of aircraft losses, but through the loss of well-trained and experienced pilots. It is estimated that Luftwaffe losses in February, accelerated by “Big Week,” amounted to 33 percent of its total number of single engine fighters and 17.9 percent of its fighter pilots. New US tactics saw the Luftwaffe lose 2,262 of its pilots from January through May out of an average pilot strength of 2,283, equating to a 99 percent loss rate. To make matters worse, many of these losses were the more experienced Luftwaffe fighter leaders that could never be adequately replaced.⁴ Although German aircraft production was disrupted, fighter acceptance rates actually increased throughout the remainder of 1944. However, by July 1944, Luftwaffe training hours per pilot were roughly one-half of the hours required to qualify as a pilot in 1942. This figure indicates that the quality of pilot being sent to operational Luftwaffe squadrons had been greatly reduced. This data, combined with the reduction in available gasoline brought on by attacks on the oil industry in the summer of 1944, led to the Allies’ gaining what they had long sought—air superiority over the Germans.

Conclusions

There are two key questions that need to be addressed. First, did the AAF idea of unescorted daylight bombing work? Second, did the AAF achieve its objectives through the application of strategic bombing?

Once submitted to the brutal test of combat, prewar bomber doctrine, which held that unescorted bombers could attack strategic targets deep within enemy territory without prohibitive losses, was found to be incorrect. Once large-scale strategic missions began, bomber losses were frequently above the acceptable rate and sometimes intolerable. Only when escorts could accompany the bombers into Germany and back and operate offensively rather than defensively did the bomber loss rate drop. When enemy fighter presence diminished, the AAF and RAF bombers had control of the skies. In fact, in the spring of 1944, the AAF flew routes to specially identified targets, such as Berlin, for the purpose of drawing out the Luftwaffe.

As to the second question (Was the strategic bombing campaign successful?) in the end, we achieved our main goal of eliminating the threat of the Luftwaffe to the bombers and of obtaining air superiority for an invasion. Once the bombers were virtually free to fly anywhere in German airspace, the effectiveness of the attacks on the German economy increased greatly. But the greatest achievement of the strategic campaign was the gaining of air superiority over the German Luftwaffe. The role of the fighter as escort was vital to this achievement. The ability of the bombers to focus on their targets, rather than on self-defense, greatly contributed to bomber accuracy. The freedom allowing fighters to operate offensively gave the bombers this ability. Of course, the Germans helped us, too. The lack of spare parts and supplies, the virtual elimination of adequately trained pilots entering operational service, and the critical shortages of oil and fuel for aircraft all contributed to unacceptable and debilitating German fighter attrition.

Was air power decisive as the US Strategic Bombing Survey claims? Yes and no. No, in that air power did not preclude the need for an eventual land invasion of Europe (as some air power advocates had hoped). Yes, in that it played a decisive role in the combined effort of ground and air forces that resulted in the defeat of Germany. The ground invasion would not have been possible had we not had virtual air superiority. Without the ground invasion, the likelihood of the Nazis surrendering was remote.

Notes

1. Charles Webster and Noble Frankland, *The Strategic Air Offensive against Germany, 1939–1945*, vol 2, *ENDEAVOUR* (London: Her Majesty's Stationery Office, 1961), 9–21.
2. Ibid., 13.
3. Ibid.
4. Williamson Murray, *Strategy for Defeat: The Luftwaffe 1933–1945* (Maxwell AFB, Ala.: Air University Press, 1983), 237, 240, 242–43.